

EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method for removing solids from a slurry stream comprising fluids and entrained solids, the method comprising the steps of:

i) adding a flocculating agent to agglomerate to said solids so as to form agglomerated solids within said slurry stream;

ii) introducing said slurry stream having said agglomerated solids and said fluids therein through an inlet to a vessel having an outlet that is below and substantially co-axial with said inlet;

iii) directing said agglomerated solids through a guiding member which guides said agglomerated solids to said outlet;

iv) forming and maintaining a substantially conical mass of agglomerated solids substantially co-axial with and over said outlet, thereby upwardly displacing said fluids;

v) withdrawing said agglomerated solids from said mass of agglomerated solids via said outlet; and

vi) removing said fluids from said vessel from a location remote from said outlet.

2. The method as claimed in claim 1 further comprising the step of centrifuging said withdrawn agglomerated solids to separate any residual fluids therefrom.

3. The method as claimed in claim 1 wherein said introducing comprises propelling said agglomerated solids and said fluids.

4. The method as claimed in claim 3 wherein said agglomerated solids and said fluids are propelled through said inlet by pump pressure.

5. The method as claimed in claim 1 wherein said directing comprises aiming said slurry stream at said guiding member.

6. The method as claimed in claim 1 wherein said guiding member comprises a substantially vertical conduit coaxial with and suspended above said outlet.

7. The method as claimed in claim 1 wherein removing said fluids is accomplished by means of drainage.
8. An apparatus for removing solids from a slurry stream comprising fluids and agglomerated solids, the apparatus comprising:
- a tank having a peripheral wall and a bottom, an inlet for supplying said slurry stream to said tank, and an outlet fluidly coupled to said bottom substantially co-axial with and below said inlet;
 - guiding means substantially co-axial with but positioned above said outlet and between said inlet and said outlet, to form and maintain a substantially conical mass of agglomerated solids substantially co-axial with and over said outlet; and
 - fluid removal means for removing said fluids from said tank from a location remote from said outlet.
9. The apparatus as claimed in claim 8 wherein said bottom is substantially conical with said outlet centrally disposed therein.
10. The apparatus as claimed in claim 8 wherein said means inlet comprises means for propelling said slurry stream through said inlet into said tank.
11. The apparatus as claimed in claim 8 wherein said mass of agglomerated solids is substantially conical.
12. The apparatus as claimed in claim 8 wherein said fluid removal means comprises a drain.
13. The apparatus as claimed in claim 8 wherein said guiding means comprises a baffle assembly suspended in said tank.
14. The apparatus as claimed in claim 13 wherein said baffle assembly is moveable, for adjusting the position of said baffle assembly within said tank.

15. The apparatus as claimed in claim 13 wherein said baffle assembly comprises a plurality of concentric baffle members that partition said tank into a plurality of fluidly coupled chambers.

16. The apparatus as claimed in claim 14 further comprising means for moving said baffle assembly.

17. A system for removing solids from a slurry stream comprising fluids and entrained solids, the system comprising:

agglomeration means for agglomerating said entrained solids within said slurry stream;

inlet means for introducing said slurry stream to a solids concentrating apparatus, said apparatus comprising:

a tank having a peripheral wall, a bottom, and an outlet fluidly coupled to said bottom substantially co-axial with and below said inlet means;

guiding means substantially co-axial with but positioned above said outlet and between said inlet means and said outlet, to form and maintain a substantially conical mass of agglomerated solids substantially co-axial with and over said outlet; and

drain means for removing said fluids from said tank;

sensor means for detecting the amount of each of said agglomerated solids and said fluids in said tank;

solids removal means fluidly coupled to said outlet, for withdrawing said agglomerated solids through said outlet; and

separation means fluidly coupled to said solids removal means, for separating residual water from said agglomerated solids withdrawn through said outlet.

18. The system as claimed in claim 17 further comprising control means, said control means receiving input from said sensor means and regulating volumetric flow of slurry into said tank via said inlet means and/or volumetric flow of fluids out of said tank via said drain means.

19. The system as claimed in claim 17 wherein said agglomeration means comprise flocculant.

20. The system as claimed in claim 19 further comprising:

flocculant generation means fluidly coupled to said drain means, for mixing removed fluid with flocculating agent to create flocculant; and

flocculant transfer means fluidly coupled to said flocculant generation means at a point upstream of said solids concentrating apparatus, for introducing said flocculant into a conduit carrying said slurry stream to said inlet means.